INFLUENCE OF ORGANIC AMENDMENTS ON METAL RETENTION BY A SANDY SOIL

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The disposal of many organic wastes on agricultural lands is a widely used practice. The wastes frequently contain substances which improve soil fertility, however other components can have undesired consequences for crops. Agricultural applications of these residues is important for both environmental an economic reasons.

The purpose of this study was to evaluate the effect of the addition of two residues used as amendment on the retention of copper and zinc on a sandy soil.

The soil was sampled from the surface horizon of a soil classified as Hydromorfic Regosol. The soil was amended with urban waste compost or compost manufactured from olive mill wastewater and other plant residues.

The results of the present study showed that the addition of the residues increased the retention of both heavy metals. The proportion of added Cu retained is considerably higher than that of Zn, suggesting a higher affinity of the soil for the former. The desorption of the sorbed metal by dilution is always negligible, regardless of whether the soil has been amended or not.

The addition of the waste amendments increases the pH and organic matter content of the soil. The result strongly support that pH is the main driving "force" for retention of the metal .

The application of wastes to soils must be studied carefully, because in some case can contribute to immobilise metal, but pH changes that may eventually take place (through fertilisation, acid rain, etc) may easily reverse the process toward the undesired release of significant amounts of metals in soluble forms.